CHAPTER

1 States of Matter

Exercise 1A States of Matter

1 Fill in the blanks in the sentences given. Find and circle the answers in the puzzle.

(a) Gases have a low _____.

(b) In a solid, the particles are _____ together.

(c) We can _____ gases easily as the particles are far _____.

(d) The particles of gases have high _____.

(e) In a _____, the particles are close together but can move freely.

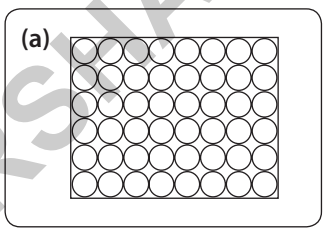
(f) In a _____, the particles are held in fixed positions and are arranged in a _____ arrangement.

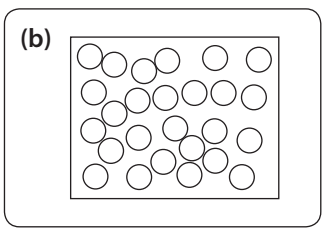
(g) In a solid, the particles are not _____ freely. They _____ about their fixed positions.

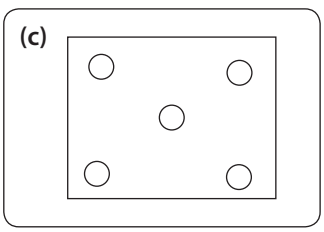
(h) The particles of gases have a lot of _____ and move in _____ directions.

X	L	R	D	R	P	R	S	I	L	U	N	R
Z	C	P	A	E	F	U	L	A	O	K	P	M
V	Q	B	Y	N	N	J	E	K	W	N	T	C
I	H	T	Z	Y	D	S	Z	S	M	S	W	Y
B	T	E	F	T	D	O	I	C	L	O	S	E
R	I	N	A	H	G	P	M	T	V	L	B	I
A	E	E	S	O	A	A	A	P	Y	I	P	L
T	X	R	T	U	S	Q	Q	H	N	D	X	O
E	P	G	H	T	L	I	Q	U	I	D	P	Q
J	A	Y	C	O	M	P	R	E	S	S	Q	G
U	N	T	O	A	P	A	R	T	R	M	W	S
M	D	S	R	T	J	J	M	O	V	I	N	G
R	E	G	U	L	A	R	O	Z	S	B	R	D

2 Draw lines to match the particle model to the state of matter.







Liquid

Solid

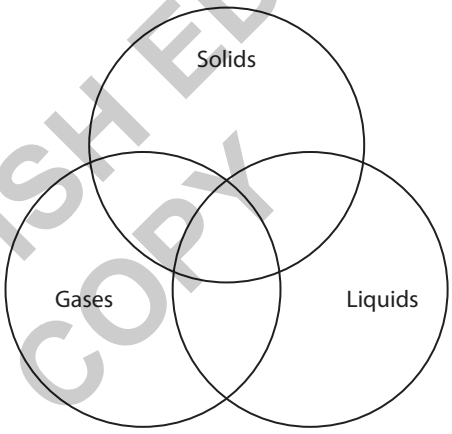
Gas

3 Complete the table showing the properties of solids, liquids and gases.

	Solid	Liquid	Gas
How close are the particles?	Very close together		
How are the particles arranged?		Disorderly arrangement	
How are the particles moving?			Move very fast in any direction
Is the energy of the particles low or high?	Very low		

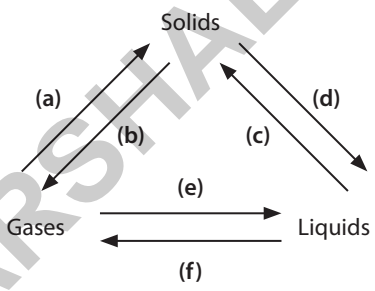
4 Complete the Venn diagram by writing the letters 'A' to 'I' to show the properties of solids, liquids and gases.

A: Can flow
B: Cannot be compressed
C: Definite shape
D: Definite volume
E: Made up of particles
F: Particles are close together
G: Particles move randomly
H: Particles vibrate in fixed positions
I: Particles are far apart



Exercise 1B Kinetic Particle Theory

1 State the names of the processes involved in the changes of state in **(c)** to **(f)**. **(a)** and **(b)** have been done for you.



(a) Deposition

(b) Sublimation

(c) _____

(d) _____

(e) _____

(f) _____

2 State **three** differences between boiling and evaporation.

_____

_____

_____

Exercise 1E Exam-style Questions

1 A liquid has a fixed volume and takes the shape of a container. A gas does not have a fixed volume and takes the shape of a container. Use the kinetic particle theory to explain these observations.

_____

_____

_____ [3]

2 The diagram shows the heating curve of substance X.

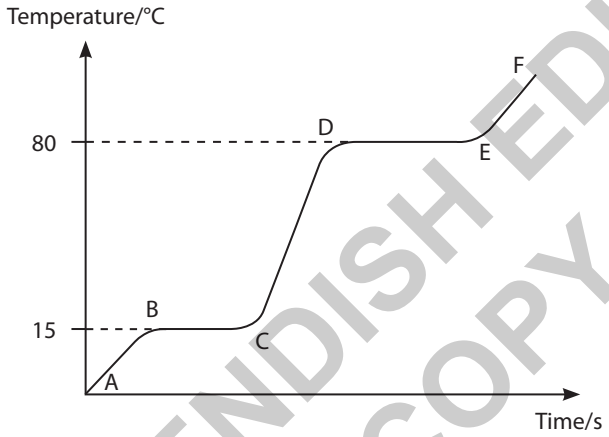


Figure 1.1

(a) What is the melting point of substance X?

_____ [1]

(b) Is substance X a solid, a liquid or a gas at room temperature (25°C)?

_____ [1]

(c) Name the process taking place at part DE of the heating curve.

_____ [1]

(d) Describe how the particles of substance X at parts CD and EF of the curve differ in their arrangement, amount of energy and motion.

_____

_____

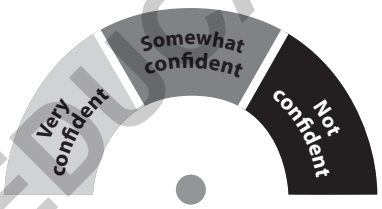
_____ [3]

Exercise 1F Let's Reflect

Reflect on your learning achievements for each section in Chapter 1. Look back at the concepts taught in the Student's Book. Check how you have fared in answering the questions in the Student's Book and the Theory Workbook. Then complete the Chapter Journal.

Chapter Journal

1 Rate your confidence level for your understanding of this chapter.
Draw a pointer on the confidence meter to show your confidence level.



➔ If you are *not confident* or only *somewhat confident*, go back to the Student's Book and revise this chapter.

2 What questions do you still have about the concepts taught in this chapter? Write them, if any, in the space provided.

1.1 States of Matter	
1.2 Kinetic Particle Theory	
1.3 Changes of State of Matter and the Kinetic Particle Theory	
1.4 Effects of Temperature and Pressure on the Volume of a Gas	
1.5 Diffusion	

➔ If you have written any questions, show them to someone such as your teacher who can help you.

3 What other thoughts do you have about learning this chapter?

_____

_____

_____

_____

_____

➔ Reflect on your thoughts and share them with your teacher or classmates.